

## Silicon PNP Power Transistors

## TIP32/32A/32B/32C

**DESCRIPTION**

- With TO-220C package
- Complement to type TIP31/31A/31B/31C

**APPLICATIONS**

- Medium power linear and switching applications

**PINNING**

PIN	DESCRIPTION
1	Emitter
2	Collector;connected to mounting base
3	Base

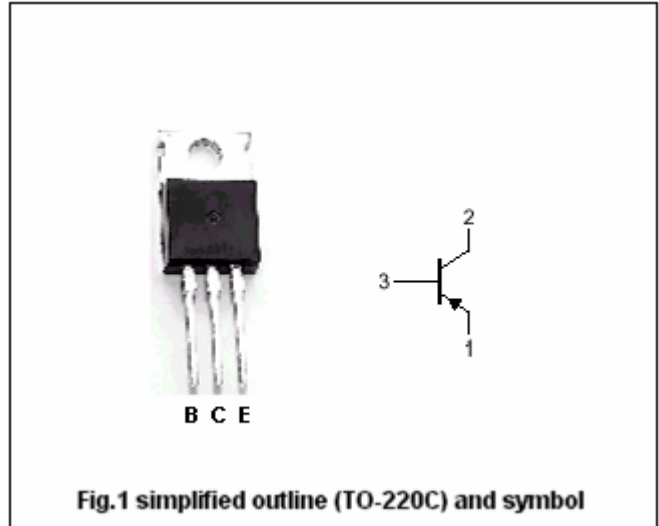


Fig.1 simplified outline (TO-220C) and symbol

**ABSOLUTE MAXIMUM RATINGS(T<sub>c</sub>=25 °C)**

SYMBOL	PARAMETER	CONDITIONS	VALUE	UNIT
V <sub>CBO</sub>	Collector-base voltage	TIP32	-40	V
		TIP32A	-60	
		TIP32B	-80	
		TIP32C	-100	
V <sub>CEO</sub>	Collector-emitter voltage	TIP32	-40	V
		TIP32A	-60	
		TIP32B	-80	
		TIP32C	-100	
V <sub>EBO</sub>	Emitter-base voltage	Open collector	-5	V
I <sub>C</sub>	Collector current (DC)		-3	A
I <sub>CM</sub>	Collector current-Pulse		-5	A
I <sub>B</sub>	Base current		-1	A
P <sub>C</sub>	Collector power dissipation	T <sub>c</sub> =25 °C	40	W
		T <sub>a</sub> =25 °C	2	
T <sub>j</sub>	Junction temperature		150	°C
T <sub>stg</sub>	Storage temperature		-65~150	°C

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## CHARACTERISTICS

T<sub>j</sub>=25 °C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT	
V <sub>CEO(SUS)</sub>	Collector-emitter sustaining voltage	TIP32	-40			V	
		TIP32A	-60				
		TIP32B	-80				
		TIP32C	-100				
V <sub>CE(sat)</sub>	Collector-emitter saturation voltage	I <sub>C</sub> =-3A ; I <sub>B</sub> =-0.375A			-1.2	V	
V <sub>BE</sub>	Base-emitter on voltage	I <sub>C</sub> =-3A ; V <sub>CE</sub> =-4V			-1.8	V	
I <sub>CES</sub>	Collector cut-off current	TIP32	V <sub>CE</sub> =-40V ; V <sub>EB</sub> =0			-0.2	mA
		TIP32A	V <sub>CE</sub> =-60V ; V <sub>EB</sub> =0				
		TIP32B	V <sub>CE</sub> =-80V ; V <sub>EB</sub> =0				
		TIP32C	V <sub>CE</sub> =-100V ; V <sub>EB</sub> =0				
I <sub>CEO</sub>	Collector cut-off current	TIP32/32A	V <sub>CE</sub> =-30V ; I <sub>B</sub> =0			-0.3	mA
		TIP32B/32C	V <sub>CE</sub> =-60V ; I <sub>B</sub> =0				
I <sub>EBO</sub>	Emitter cut-off current	V <sub>EB</sub> =-5V ; I <sub>C</sub> =0			-1.0	mA	
h <sub>FE-1</sub>	DC current gain	I <sub>C</sub> =-1A ; V <sub>CE</sub> =-4V	25				
h <sub>FE-2</sub>	DC current gain	I <sub>C</sub> =-3A ; V <sub>CE</sub> =-4V	10		50		
f <sub>T</sub>	Transition frequency	I <sub>C</sub> =-0.5A ; V <sub>CE</sub> =-10V	3			MHz	

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PACKAGE OUTLINE

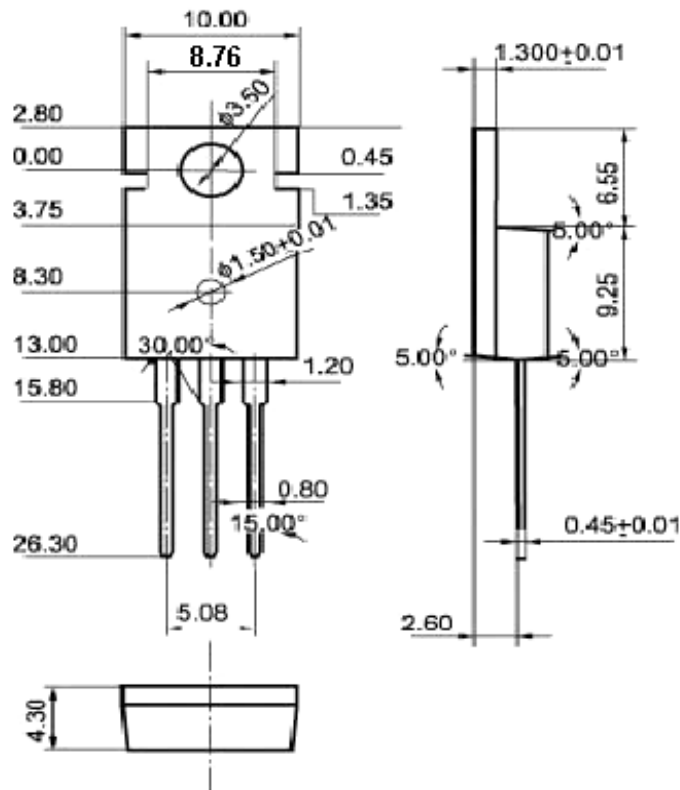


Fig.2 Outline dimensions (unindicated tolerance:  $\pm 0.10$  mm)

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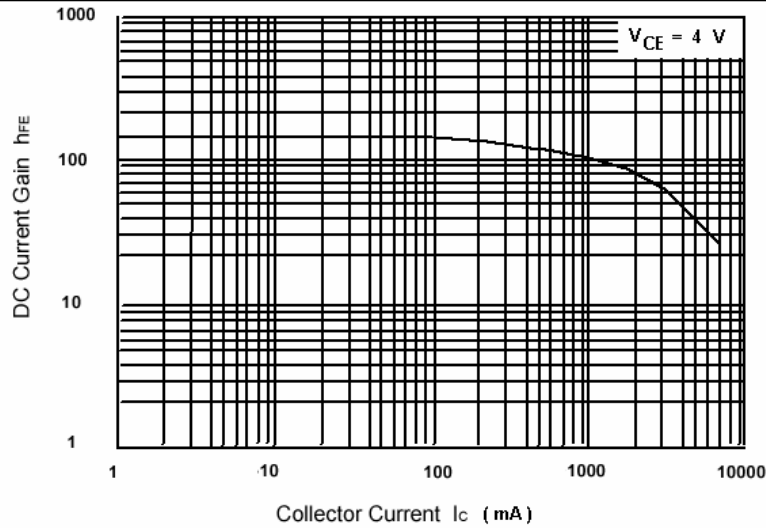


Fig.3 DC current Gain

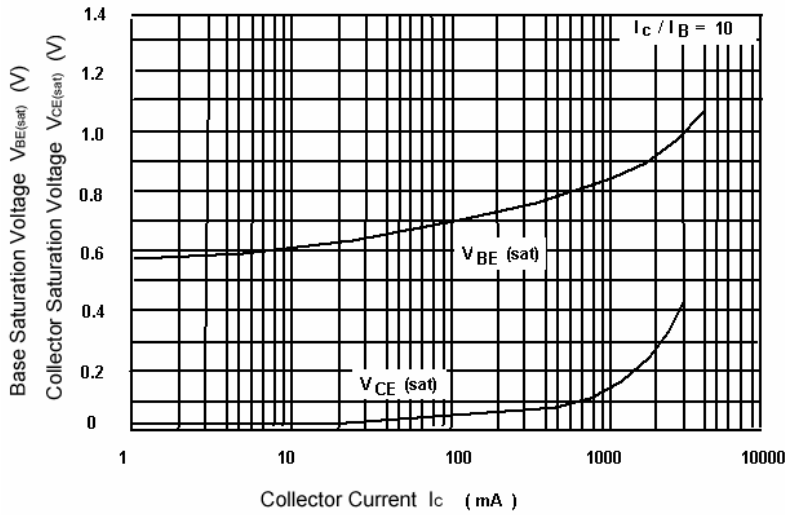


Fig.4 Base-Emitter Saturation Voltage  
Collector-Emitter Saturation Voltage

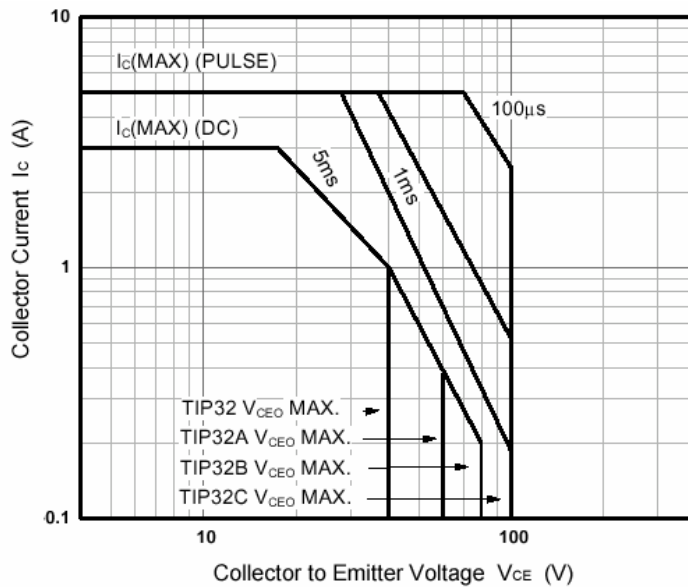


Fig.5 Safe Operating Area